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Priest River

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

1380 - Reports -

1964-1965 ANNUAL REPORT

PRIEST RIVER EXPERIMENTAL FOREST

by

Robert D. Pfister and Calvin L. Carpenter



Intermountain Forest and Range Experiment Station

Ogden, Utah

Routed to Director & Assistant Directors

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1964-1965 ANNUAL REPORT

PRIEST RIVER EXPERIMENTAL FOREST

Increasing research activity and improved planning for future research characterize the years 1964 and 1965 at Priest River Experimental Forest. Major activities included the instigation of an intensive watershed research program, a concentrated study of fungi, preparation of major management guidelines, and start of a soil survey for the entire Forest.

The following report summarizes the activities during the 53rd and 54th years of operation.

RESEARCH ACTIVITIES

TIMBER MANAGEMENT RESEARCH

Growth and Yield

Plots 112-118, on Benton Creek, were remeasured by Robert Pfister in 1965. These plots were established in 1923 to study growth and follow succession in immature stands.

Thinning

Plots 101-104, and 109 were remeasured by Glenn Deitschman in 1964. Plots 110-111 were remeasured by Robert Pfister in 1965. Plots 105-108 were maintained by Dave Grakovich in 1964. These plots were established in Benton Creek in 1914, 1924, 1925, and 1919 respectively, to test various degrees of thinning in overstocked stands.

Pruning

Measurements were made in plot 182 by Glenn Deitschman in 1965. This plot was established in 1940 to test the effects of different pruning heights in western white pine.

Vigor Quality Outplantings

Plot 212 was measured and maintained by J.W. Hanover in 1964. Measurements on this study are being continued to determine the heritability of vigor and quality traits in rust-resistance white pine progeny.

Management Planning

A management guide for the Experimental Forest by Robert Pfister and Glenn Deitschman was completed in 1965. This guide presents the policies, major considerations and objectives aimed at making the Experimental Forest most useful for present and prospective research and demonstration. It also provides specific guidelines to be followed in formulating action programs on a five-year basis.

WATERSHED MANAGEMENT RESEARCH

Benton Creek Model Watershed

Project 1601 stepped up its activities in Benton Creek to a considerable degree in 1964-1965. The Experimental Forest, especially upper Benton Creek, was judged suitable for future research in two categories: plot studies and small watershed evaluation. Two rather complete climatic stations, instrumented to measure snow depth, wind velocity, temperature, hourly precipitation, solar radiation (incident), and relative humidity, have been activated at old station site #21 (3500 feet) and #39 (4000 feet). Snowcourse work at Benton Spring was expanded to include November and December measurements.

Two years of suspended-sediment sampling at the Benton gaging dam revealed only minute quantities of sediment passing over the weir at flood stages. Deposits in the pond as estimated from ground-profile determinations were also relatively light. The sampling of suspended sediments has been discontinued until after logging; however, the trapping and measurement of deposited sediments will continue.

Snow Interception--Cooperative Study with Washington State University

This past November the Department of Forestry and Range Management, Washington State University, and Watershed Management Research, Project 1601 agreed to cooperate on snow interception studies to be conducted in the vicinity of the headquarters. Dr. Don Satterlund, professor at the University, will be the principal supervisor of the studies. The objectives of the experiments are to develop and test methods for determining snow interception by different species of coniferous trees in northern Idaho and to calculate seasonal amounts of snow interception in pure and mixed stands. The present agreement extends to July 1, 1968.

FOREST DISEASE

Pole Blight

The three pole blight induction plots were maintained and soil moisture samples were collected by Ed Wicker in 1964 and 1965. Twig samples from pole-blighted and healthy white pine trees were collected in 1964 and 1965. These samples were sent to Walter Benfield, University of Massachusetts, for use in a cooperative grafting study.

Dwarfmistletoe

Ed Wicker continued work on the field plot established in 1961 to study host specificity and age susceptibility of dwarfmistletoe on several tree species. The plot was examined in the springs of 1964 and 1965 to determine amount of dwarfmistletoe seed removal by snow and amount of successful infections. Seedlings were re-inoculated each fall with several species and varieties of dwarfmistletoe seed. These data have been analysed and included in Wicker's Ph.D. dissertation at Washington State University.

Armillaria mellea

Jerry Koenigs continued work on the cedar release plots (180 and 181) in 1965. Ten cedars without basal cankers were excavated and examined to determine if chlorotic foliage is associated with Armillaria root infection.

Collection and study of fungi

During the spring, summer, and fall of 1964, a concentrated study of the higher fungi was carried out in northern Idaho. The Experimental Forest was used as a headquarters for this purpose.

The following mycologists participated in field studies during the season:

Dr. Alexander H. Smith	University of Michigan
Dr. Harry Thiers	San Francisco State College
Dr. Orson E. Miller, Jr.	Forestry Sciences Lab, Laurel, Maryland
Dr. Edward Tylutki	University of Idaho
Mr. Harold Bardsall	Cornell University
Mr. Paul Miller	Washington State University
Mr. John Paden	University of Idaho
Mr. Kenneth Harrison	Canadian Dept. of Agriculture, Kentville, Nova Scotia

The group was visited by Dr. Robert Gilbertson of the New York University School of Forestry at Syracuse University and his summer class in mycology from the Flushing Biological Station. Dr. John Hensbrough and Dr. Keith Arnold of the Washington Office of the U.S. Forest Service also visited the group during the season.

Approximately 3,000 collections of higher fungi were made during the course of the season. Dr. Miller made 250 isolates of saprophytic, parasitic, and mycorrhizal fungi which were sent to the Forest Disease Laboratory in Laurel, Maryland. Most of these fungi had never been cultured before and have aided the Laurel laboratory in its effort to obtain an adequate western culture collection.

The excellent fall fruiting conditions provided abundant material in the Boletaceae. A paper entitled "The Species of Stillingia and Puccinellina of the Priest River Experimental Forest and Vicinity, Priest River, Idaho" by Alexander H. Smith, Harry Thiers, and Orson K. Miller is to be published in Lloydia in the summer of 1963. Additional reports on other fungal investigations at the Experimental Forest by Miller and by Burdett have been submitted for publication in Mycologia.

Dr. Edmund Tylutki is working on a project dealing with the poisonous and edible mushrooms of Idaho. Collections were made for the Herbarium at the University of Idaho and new records obtained in northern Idaho.

Mr. Kenneth Harrison, the North American expert on the Hymenogaster, continued his work on the western hydnum. His work in Idaho is part of an overall study which will lead to a monograph of the western hydnum.

The season's effort resulted in a greatly expanded knowledge of the higher fungi of northern Idaho. Continued studies in the future in northern Idaho are anticipated. The long-range purpose of this effort is to adequately understand the higher fungi and the biological role which they perform in the forest.

FOREST FIRE RESEARCH

Fire Behavior

Bob Hatch visited the Experimental Forest in August and in October, 1964 to prepare planting sites and to seed cheatgrass for a study with the following objectives: (1) to describe flammability of cheatgrass at various stages of maturation, and (2) to develop field guidelines to aid fire weather observers in interpreting cheatgrass vegetation in terms of the spread index. The plots were revisited several times during the spring and summer of 1965 to follow the drying rate and coloration changes of curing cheatgrass. The cheatgrass drying rate at Priest River Experimental Forest was quite similar to that on a north-exposure study area in western Montana.

Jim Brown and Bob Schmitta collected western white pine and western larch needles on the Experimental Forest in 1964 and 1965. These fuels are being used in rate-of-spread and combustion experiments are being conducted at the Northern Forest Fire Laboratory.

Fire Control Systems

James Halbach and a crew of four men spent two weeks at the Experimental Forest in 1964, while delineating and cruising a stand of timber for testing the capability of airborne infrared fire detection devices. The Moore Creek Natural Area was selected and a 2-percent cruise was completed.

A three-man crew returned for the week of August 16, 1965 and did the preliminary ground work for the test flights. The main ground crew spent the following two weeks preparing the fire targets, assisting in the flights, and cleaning up the test area. The cruising was completed by a three-man crew the week of October 10.

Preliminary analysis indicated that detection probability was better for the western white pine site than for Engelmann spruce or coastal Douglas-fir sites, but poorer than for the larch-Douglas-fir or ponderosa pine sites. The Experimental Forest was also flown so infrared imagery would be available for research efforts.

FIREST RESEARCH

Control Weather Station (Figure 1)

The continuous weather records were maintained for the 53rd and 54th consecutive years. Weekly and monthly weather records were provided for the Priest River Flats as usual during 1964 and 1965. A summary for the two years and "normal" figures are presented in Table 1.

Fire Weather Station

The fire-weather records, which have been maintained during the May-October fire season since the mid-1920's, were continued in 1964 and 1965. The system of recording data was changed in 1964 from the Model 8 Danger Rating System to the National Danger Rating System. The severity of the 1964 and 1965 fire seasons were below normal.

Benton Creek Streamflow

Records of Benton Creek streamflow, continuous since 1938, were maintained in 1964 and 1965. A new recorder was installed at the gaging dam in 1964 to replace the old one. These records are now an integral part of the watershed management research project.

Precipitation (Figure 2)

Precipitation records were maintained yearlong at the following locations: (1) control weather station; (2) Benton dam; and (3) Benton Spring. The rain gage at the end of Benton Creek Road was removed in 1965. The recorder at the central station and Benton Dam are recording rain gages (serviced weekly). The Benton Spring standard 8-inch storage can was replaced with a Sacramento storage gage in 1964 to facilitate monthly measurements. Monthly precipitation at these three stations for 1964 and 1965 is presented in Table 2.

Snow Survey

In cooperation with the Soil Conservation Service, Benton Spring and Benton Meadow snowcourses were measured monthly from January through May in 1964 and 1965. The resulting data are presented in Table 3. The Benton Spring snowcourse measurements also contribute importantly to the watershed research project. Additional measurements of the Benton Spring snowcourse were made for this purpose in November and December 1965.

Soil Moisture and Temperature Measurements

The soil moisture and temperature recording station at Benton Spring was destroyed by a windfall in January 1964. Records have been discontinued.



Fig. 1.--Acting Superintendent Crnkovich inspecting pyrheliometer at control weather station, 1964.



Fig. 2.--Acting Superintendent Carpenter servicing recording rain-gauge at end of Benton Creek Road, 1965.

Table 1.--Weather summary for 1964 and 1965 (control station).

Month	Precipitation			Temperature					
	Normal*	1964	1965	Average minimum			Average minimum		
				Normal*	1964	1965	Normal*	1964	1965
	- - - - inches - - - -			- - - - F° - - - -					
January	4.02	5.12	3.34	30.3	33.3	32.7	16.6	23.8	25.1
February	3.09	.78	3.43	36.9	38.9	37.1	18.3	18.0	20.3
March	2.65	3.86	.36	45.3	44.5	45.0	23.5	22.3	15.3
April	2.00	1.25	2.87	57.6	53.3	58.8	29.6	28.6	30.7
May	2.18	1.37	1.64	66.7	64.5	64.4	36.6	36.5	34.4
June	2.27	2.16	1.35	73.5	73.2	73.7	42.5	44.6	41.8
July	0.89	1.50	.72	83.1	83.1	83.2	45.5	45.7	46.7
August	1.04	2.72	2.79	80.2	75.2	79.8	43.4	42.3	48.3
September	1.67	2.20	1.00	70.9	66.9	63.2	37.8	35.6	35.2
October	2.96	.50	.38	56.6	59.0	59.8	32.1	31.6	32.9
November	3.76	5.49	4.07	39.6	37.6	42.0	26.7	28.2	31.4
December	4.37	6.95	3.76	32.5	28.5	32.8	21.1	17.6	24.7
ANNUAL	30.90	33.90	25.71	56.2	54.6	56.0	31.0	31.2	32.2

*Normal reflects 50-year average (1912-1961)

Table Monthly precipitation at three stations on Benton Creek -- 1964-1965

Month	Control (elev. 2344')			Benton Dam (elev. 2640')			Benton Spring (elev. 4700')		
	Normal*	1964	1965	Normal*	1964	1965	Normal*	1964	1965
	----- inches -----								
January	3.16	5.12	3.34	4.10	7.57	5.31	3.07	4.89	2.00
February	2.96	0.78	3.43	3.10	1.35	2.91	3.29	1.56	3.50
March	2.95	3.86	.36	3.32	4.70	.51	4.05	4.59	1.00
April	2.22	1.25	2.87	2.48	1.79	3.38	3.04	2.02	4.75
May	3.03	1.37	1.64	3.20	1.67	1.95	3.81	1.98	1.25
June	1.59	2.16	1.35	1.81	2.88	1.59	2.01	2.70	1.70
July	.79	1.50	0.72	.79	1.37	.78	1.08	1.53	2.50
August	1.59	.43	2.79	1.86	3.83	3.42	1.95	2.23	4.05
September	1.56	2.20	1.00	1.49	2.19	1.10	1.39	2.02	.25
October	2.22	0.50	0.35	2.10	.53	.41	2.34	1.01	.50
November	5.58	5.49	4.07	5.80	5.90	3.86	6.09	8.76	3.20
December	4.25	6.90	3.76	5.04	6.13	5.38	5.15	7.70	6.50
ANNUAL	31.90	31.56	25.71	35.09	41.91	30.60	37.27	40.99	31.20

*Based on 6-year average (1960-1965), because Benton Spring rain gage records began in 1960.

Table 3.--Snow depth and water content, 1964-1965

Month	Normal*		1964		1965	
	Snow depth	Water content	Snow depth	Water content	Snow depth	Water content
	-----		-- inches --		-----	
Benton Meadow (Elev. 2344')						
January 1	12.0	2.7	15	2.5	36	5.8
February 1	19.4	4.8	32	7.6	30	8.9
March 1	19.3	6.0	26	7.8	28	10.1
April 1	6.2	2.3	24	7.9	18	8.1
May 1	0.0	0.0	0	0.0	0	0.0
Benton Spring (Elev. 4775')						
January 1	30.9	8.4	30	7.4	45	9.6
February 1	46.8	13.7	34	14.2	55	15.7
March 1	55.3	18.4	52	19.0	53	16.2
April 1	55.6	20.4	65	24.0	56	18.4
May 1	34.0	14.8	48	21.6	26	11.0

*Based on 27-year average (1937-1963).

Other Climatic Stations

Climatic stations have been installed at other locations as part of the watershed research projects. These are reported under that heading.

ADMINISTRATIVE ACTIVITIES

FIRE PROTECTION

A fire plan was written for the Experimental Forest in 1963. It reviews the applicable portion of the Falls District plan, outlines the Experimental Forest responsibilities, and provides an active plan for the headquarters area. New fire hose was purchased for the new water system and the siren in the office building was reinstalled.

SOIL SURVEY

R. C. McConnell and J. E. Eggleston, R-1, spent October 4-8, 1965, at the Experimental Forest. Thirty-eight soil exposures were described and soils classified. A report, including soil maps, was completed and is on file at Moscow. The soil survey will be completed in 1966.

FOREST ROADS

New Construction

Road G was extended from stations 55+87 to 102+00 (0.87 mile) with appropriated funds in October 1964 (Fig. 3). The Kanisku National Forest administered the contract with Oliver General Contracting Company, Inc. The contract cost was \$8,900 plus \$3,960 engineering charges. The C.O.D.R., Richard Haines, prepared a final construction report in which he makes recommendations on needed cost reduction measures.

Roads H-8, H-9, and part of proposed roads I-2, I-3, I-4, and I-5 were built in 1963 by Hedlund Lumber Company as part of the Benton Creek sale (Fig. 3). Roads R-1 and R-2 were built in 1963 by Ron McDonald as part of the Lower Canyon Creek sale (Fig. 3).

Reconstruction and Maintenance

Spot reconstruction on Roads B, C, and D (6.35 miles) and total reconstruction of 1.0 mile of Road G were completed in 1964 by Hedlund Lumber Company as part of the Benton Creek sale. Provisions for reconstruction of Road Q-1 are made in the Lower Canyon Creek sale and will probably be completed in 1966.

Falls Ranger Station performed maintenance on the following roads during 1964 and 1965: A, B, G, I62, I7 and Q1.

PRIEST RIVER
EXPERIMENTAL FOREST
KANIKSU NATIONAL FOREST
IDAHO

R. 4 W.

R. 3 W.

SCALE
1/4 1/2 3/4 1 MILE

T. 58 N.

T. 58 N.

Timber Sales

Roads
New construction
Re-construction

Benton Creek Sale (11-18-63) clear cuts
Lower Canyon Creek Sale (5-25-65) clear cuts
Sanitation-salvage cutting portion of these sales

Compiled from 1914 Priest River Experiment
Station survey, D.R. Brewster in charge, and additional
1933-34 Priest River Experimental Forest survey,
George M. Fisher, chief of party.
Connected - March, 1940
Feb. 26, 1950, May 2, 1950
Feb. 6, 1951, Oct. 17, 1963 11/2/65

Fig. 3. Road construction and timber sale
activity on Priest River Experimental Forest,
(1964-1965).

TIMBER SALES

Benton Creek--11/18/63--Hedlund Lumber Company

This timber sale was described in the 1962-1963 annual report. The road building and reconstruction were completed in 1964 and 1965 but no cutting other than road right-of-way has taken place (Fig. 3).

Lower Canyon Creek--5/25/65--Ron MacDonald

This timber sale was made to clearcut and regenerate overmature timber on 56 acres, thus providing areas for regeneration experiments and the establishment of young stands for future research material (Fig. 3). Road construction is required on 2.65 miles of main access road and 0.73 mile of new road construction are included.

The estimated volume and bid stumpage rates were:

<u>Species</u>	<u>Volume</u> (M.B.M.)	<u>Stumpage</u> (\$/B)	<u>Slash</u> (\$/B)
WHP	300	31.40	1.60
PP	30	8.65	1.60
WL	165	16.15	1.60
DF	150	16.15	1.60
LFP	40	16.15	1.60
WRC	154	15.00	2.34
GP	115	3.55	1.60
TOTAL	974		

	<u>Volume</u> (Lineal ft.)	<u>Stumpage</u> (\$/ft.)	<u>Slash</u> (\$/ft.)
<u>Cedar poles</u>			
20-25'	250	.01	--
30-35'	2,880	.06	.02
40-50'	2,365	.10	.02
55-65'	3,031	.18	.02
70'	149	.30	.02
TOTAL	8,665		
	(25.06 M bd. ft.)		

Road G Right-of-way--4/29/63--Larson

The right-of-way material on the section of Road G built with APW funds was sold to Larson. The values and volume removed were:

<u>Species</u>	<u>Volume</u> (M.B.M.)	<u>Stumpage</u> (\$/M)	<u>Value</u> (\$)	<u>Slash</u>
WP - PP	39.53	25.10	992.20	--
L - DF - C - LPP	56.64	15.10	855.26	--
H - GF	5.98	5.95	35.58	--
TOTALS	102.15		1,883.04	

Road G Right-of-way--10/23/64--Oliver General Contracting Company, Inc.

The right-of-way material on the second section of Road G was sold to the contractor. The values and volume removed were:

<u>Species</u>	<u>Volume</u> (M.B.M.)	<u>Stumpage</u> (\$/M)	<u>Value</u> (\$)	<u>Slash</u>
WP - PP	20.55	21.30	606.12	--
L - DF - C	27.89	24.30	677.73	--
GF	1.07	17.65	18.89	--
TOTALS	57.51		1,304.74	

IMPROVEMENTS AND MAINTENANCE

Water System

The water system installed in 1963 has been performing adequately except for electrical problems. In 1964, a power surge, evidently caused by lightning, burned out the pump. In repairing the pump, it was discovered that the casing was crooked so bushings were installed to keep the pump centered in the casing. The lightning protection circuit breaker in the control panel was inspected and considered adequate for direct-strike protection. Information on an installation to protect against power surges has been requested from R-1, but no specific reply has yet been received.

The automatic controls have not functioned properly since installation. Windfalls broke the reservoir control lines three or four times, requiring splicing of the cable. James Ward, Selkirk Electric, Newport, repaired poor splices in 1965, but the system still failed to work properly. He discovered an induced voltage in the control lines which prevents the system from operating properly, especially in wet weather. The proposed solution is to install underground cable in 1966 to replace the overhead lines.

Water samples have been taken periodically and reveal no contamination.

Sewer System

The sewer system has been functioning properly. The lagoon was inspected by Ed Daigle, R-1, in 1965, at which time a liquid sample was tested for oxygen content and gave satisfactory results. It was noted at this time that accumulation of reeds should be removed and controlled in the future. A fence was built around the lagoon in 1965 to keep children and animals out.

Grassland Treatment

Bob Dory established new lawn in the spring of 1964 in the area that had been disturbed during construction of the water and sewer system in 1963. More potential windfalls were removed from the reservoir power line area.

Building Maintenance

A brief summary of the work done in 1964 and 1965 by individual buildings follows:

- A. Office.--In 1964, the upstairs lavatory was painted and the south wall of the main floor lavatory was replastered. Two water pipes broke in the exterior wall of the southwest office on the first floor in the winter of 1964-65. These pipes, as well as five broken radiator valves, were repaired in 1965. The lecture room was entirely repainted, a new combustion chamber was installed in the furnace, and the main office was wired for 220 volts (to permit use of a portable heater) in 1965.
- B. Shop.--The foundation replacement under the east one-third of the building was completed by Engblom and Eggleston of Priest River in July 1964. This contract was part of the APW program. The total cost of repairs was \$1,094. In 1964, the exterior was stained with PPA cedar stain and the trim was painted.
- C. Bunkhouse-Mess Hall.--A doorway was installed from the dining room to the stairway in 1964. A catastrophe occurred during the winter because the building was not properly winterized. The water heater, toilets, and some pipes were broken and the building has not been usable. The damage has not been repaired pending a decision on the future destiny of this building.
- D. Cottage #1.--All bedrooms, bathroom, halls, stairwells, the southwest basement room and the laundry room were painted in 1964. The water line leading to the upstairs lavatory was replaced in 1965.
- E. Cottage #2.--The living room, bedroom, kitchen and bathroom were painted in 1964.
- F. Cottage #3.--The living room, kitchen, bedroom and bathroom were painted in 1964. A new motor was installed in the furnace in 1965.
- G. Cottage #4.--The kitchen was painted in 1964 and the basement was painted in 1965. Aluminum storm windows and storm doors were installed in 1965.
- H. Five-stall Garage.--This building was declared surplus and sold to Raymond Engblom in 1964. The building was completely removed and the area leveled.
- I. Oil House.--A new shingle roof was installed in 1965. A new 285-gallon underground gas storage tank and pump were also installed in 1965.
- J. The portable building formerly used to store spare caterpillar parts was renovated by installing new windows and the building was moved to the nursery site for use in expanded research study there.

PERSONNEL

Personnel in residence

The personnel situation was fluid in 1964 as evidenced by the following list:

<u>Position</u>	<u>Dates</u>	<u>Names</u>
Superintendent	1/1/64 - 2/15/64	Stan Carpenter and wife
	2/15/64- 6/5/64	Bob Dory and family
	6/8/64 - 1/30/65	Dave Crnkovich and family
	1/30/65- present	Gal Carpenter and family
Maintenance man	5/6/64 - 8/13/64	Milo Coons
	8/19/64- present	Bud Jeffers
Maintenance woman	Intermittent	Rose Jeffers

Milo Coons developed heart trouble during the summer of 1964. We were sorry to see him leave after six seasons of faithful service at the Experimental Forest. Bud Jeffers, Milo Coons' replacement, has been serving capably as maintenance man and as an assistant on the watershed research project. Rose Jeffers has been working intermittently the past two years on building cleaning and related maintenance.

Intermountain Station Personnel

Intermountain Forest and Range Experiment Station personnel who used the experimental forest facilities in 1964 and 1965 are too numerous to list. Excluding personnel headquartered at the experimental forest, Station personnel spent 392 man-days on the forest in 1964 and 218 man-days in 1965.

INSPECTIONS

May 18, 1964	-- Inspection of control weather station and Benton Dam precipitation gage by Howard Kappas, U.S.W.B., Boise.
June 9, 1964	-- Inspection of fire weather station by Robert R. Peterson, U.S.W.B., Missoula.
May 1965	-- Inspection of control weather station and Benton Dam precipitation gage by Howard Kappas, U.S.W.B., Boise.
June 1965	-- Inspection of fire weather station by Robert R. Peterson, U.S.W.B., Missoula.

OFFICIAL VISITORS

Many groups and individuals used the experimental forest during 1964 and 1965. Following is a chronological listing of visitors who used the forest for research or educational purposes (Intermountain Station personnel conducting research are not included):

<u>Dates</u>	<u>Visitors</u>	<u>Purpose of Visit</u>
(1964) May 22, 23	Dr. R. Daubenmire, WSU, and 11 students in field ecology class	Field observation of ecological communities and research activities at PNEF
June 13, 14	Dr. R. Daubenmire, WSU, and family	Field work on semi-permanent field plots at PNEF
June 21 - August 1	Dr. A. Smith, Univ. Mich., and family	Collection and study of higher fungi
July 3	Dr. H. Thiers, San Francisco State College	Collection and study of higher fungi
July 5	Dr. R. Gilbertson, New York Univ., and summer class	Collection and study of higher fungi
August 26	Dr. C. W. Wang, Univ. of Idaho	Collection of data from ponderosa pine racial varieties plot
September 25	Mr. K. Harrison, Canada Dept. of Agriculture	Collection and study of higher fungi
October 3, 4	J.R. Hansbrough and Keith Arnold, WO; J.F. Pechanec, C.A. Wellner, and C.D. Loophart (Ogden)	General Functional Inspection (Forest disease research)
(1965) May 22, 23	Dr. R. Daubenmire, WSU, Ecology class	Field observation of ecological communities and research activities at PNEF
August 25	Dr. Satterlund, WSU	Making preparation for cooperative snow interception studies
August 30	Wahlgren, Oikonen and Chopp, U.S. Forest Products Lab	Survey of possible areas for destruction sampling of wood properties.
September 8	Dr. R. Daubenmire, WSU	Field work on semi-permanent field plots at PNEF
October 20	Dr. F.A. Querengasser and Erhard Koernig, Germany	Part of general tour examining silvicultural and regeneration practices in the United States

COOPERATION

National forest administration provided technical advice and assistance on engineering problems associated with maintenance of the water system and completion of the APW program. Falls Ranger Station maintained roads and administered timber sales. Priest Lake Ranger Station assisted on the snow courses in 1964.

A show-me trip for Kaniksu personnel was conducted on August 16, 1965 by Glenn Deitschman, Harold Haupt, and Bob Pfister. The following Kaniksu personnel were acquainted with the history, active research program, and future objectives of the experimental forest operation:

Ron Primozic	-	Falls Ranger Station
Bill Jeters	-	Falls Ranger Station
Duane Hanson	-	Falls Ranger Station
Emil Kulhanek	-	Kaniksu Supervisor's Office
Robert Ferguson	-	Sandpoint Ranger Station
George Saunders	-	Sandpoint Ranger Station